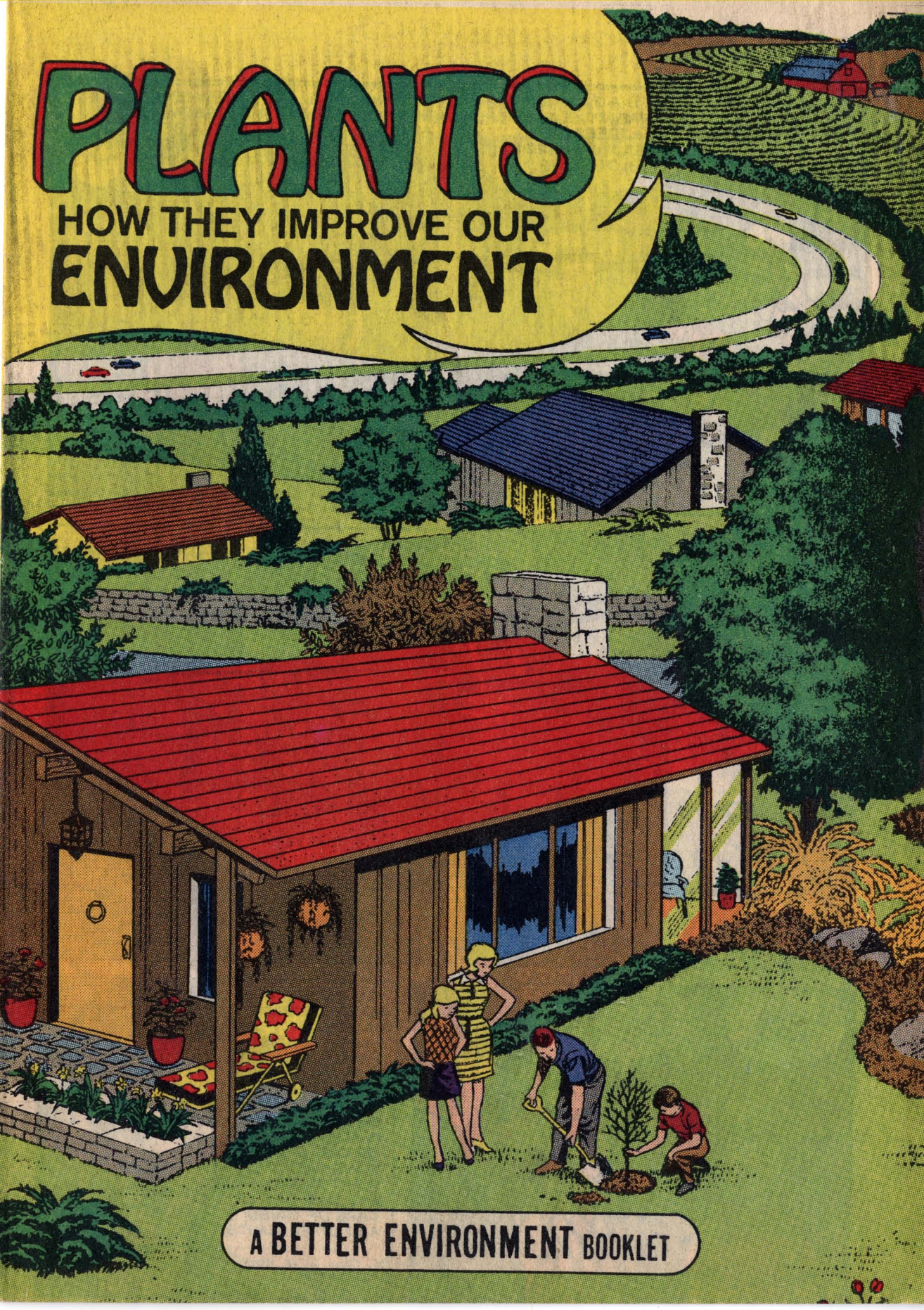
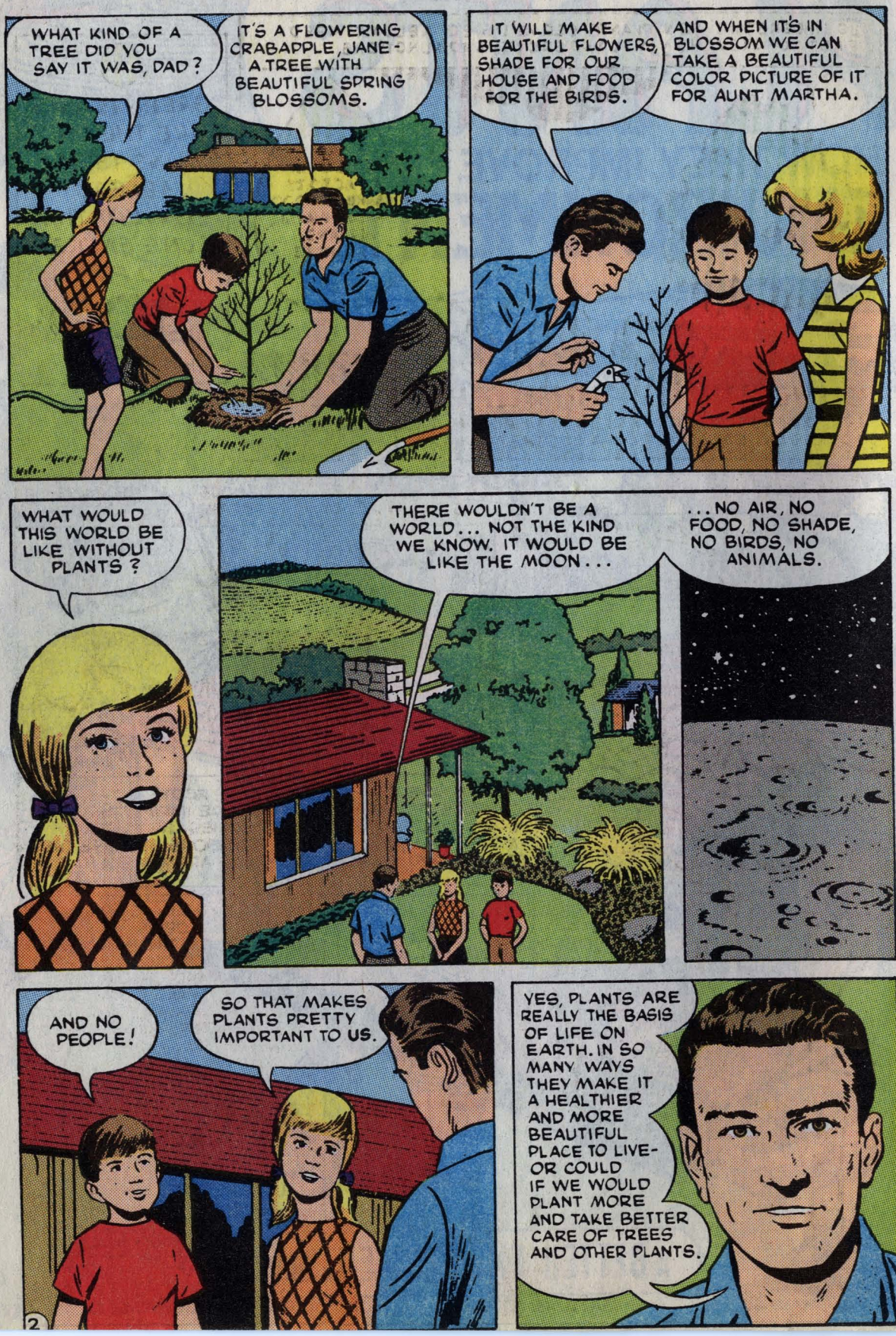
PLANTS

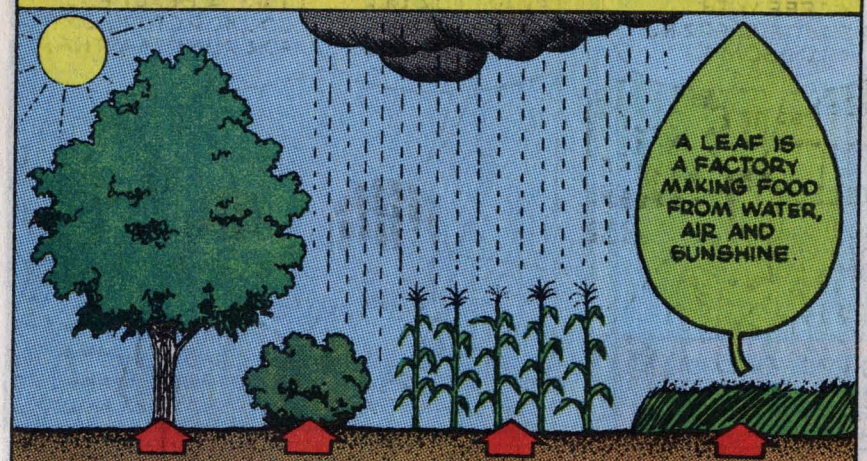
HOW THEY IMPROVE OUR ENVIRONMENT



A BETTER ENVIRONMENT BOOKLET


WHAT KIND OF A TREE DID YOU SAY IT WAS, DAD?
IT'S A FLOWERING CRABAPPLE, JANE - A TREE WITH BEAUTIFUL SPRING BLOSSOMS.
IT WILL MAKE BEAUTIFUL FLOWERS, SHADE FOR OUR HOUSE AND FOOD FOR THE BIRDS.
AND WHEN IT'S IN BLOSSOM WE CAN TAKE A BEAUTIFUL COLOR PICTURE OF IT FOR AUNT MARTHA.
WHAT WOULD THIS WORLD BE LIKE WITHOUT PLANTS?
THERE WOULDN'T BE A WORLD... NOT THE KIND WE KNOW. IT WOULD BE LIKE THE MOON...
...NO AIR, NO FOOD, NO SHADE, NO BIRDS, NO ANIMALS.
AND NO PEOPLE!
SO THAT MAKES PLANTS PRETTY IMPORTANT TO US.
YES, PLANTS ARE REALLY THE BASIS OF LIFE ON EARTH. IN SO MANY WAYS THEY MAKE IT A HEALTHIER AND MORE BEAUTIFUL PLACE TO LIVE- OR COULD IF WE WOULD PLANT MORE AND TAKE BETTER CARE OF TREES AND OTHER PLANTS.
2

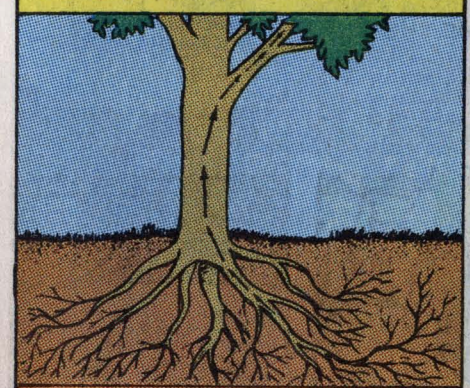
TO UNDERSTAND HOW PLANTS SERVE US SO WELL WE NEED FIRST TO KNOW HOW A PLANT GROWS AND FUNCTIONS.



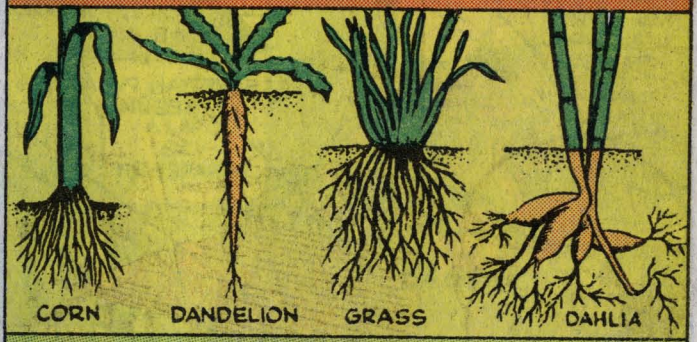
SOIL CONTAINS PLANT NUTRIENTS: NITROGEN, PHOSPHOROUS, POTASSIUM, CALCIUM, IRON AND OTHER MINERALS.

GREEN PLANTS ARE THE ONLY LIVING THINGS ABLE TO CONVERT THE SUN'S ENERGY INTO FOOD.

LET'S START WITH THE ROOTS.

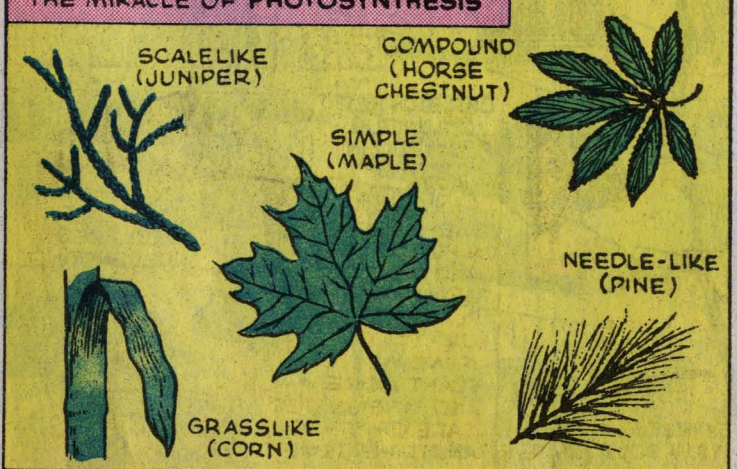


THEY TAKE IN MOISTURE AND MINERALS AND SEND THEM UP TO THE "FOOD FACTORY" IN THE LEAVES. THEY ANCHOR THE PLANT, TOO.



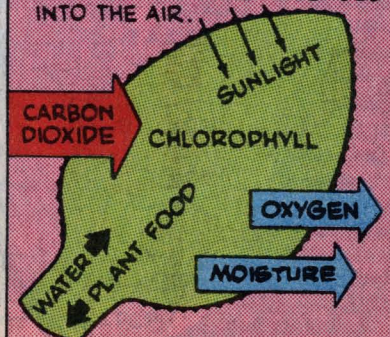
PLANTS HAVE DIFFERENT KINDS OF ROOTS. SOME, LIKE CARROTS OR SWEET POTATOES, ARE IMPORTANT SOURCES OF HUMAN FOOD. PEONIES LIVE THROUGH MORE THAN ONE SEASON OUTDOORS BECAUSE THEY STORE FOOD IN THEIR ROOTS AND ARE WINTER HARDY.

THE MIRACLE OF PHOTOSYNTHESIS

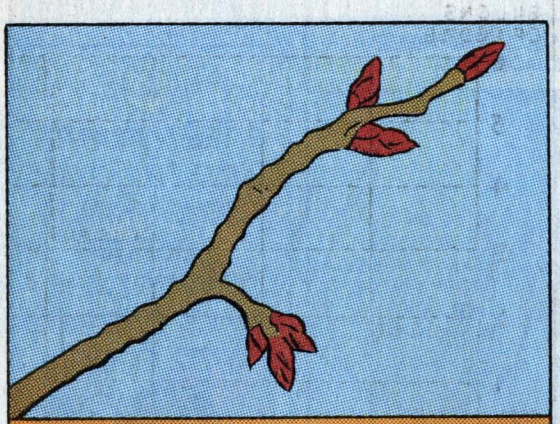


LEAVES VARY GREATLY IN SIZE AND SHAPE, BUT THEIR MAIN JOB IS TO MANUFACTURE FOOD.

THE GREEN IN LEAVES COMES FROM "CHLOROPHYLL". USING WATER FROM THE SOIL AND CARBON DIOXIDE FROM AIR, SUNLIGHT AND CHLOROPHYLL REACT TO MAKE FOOD FOR THE PLANT. OXYGEN AND PART OF THE WATER ARE RELEASED INTO THE AIR.



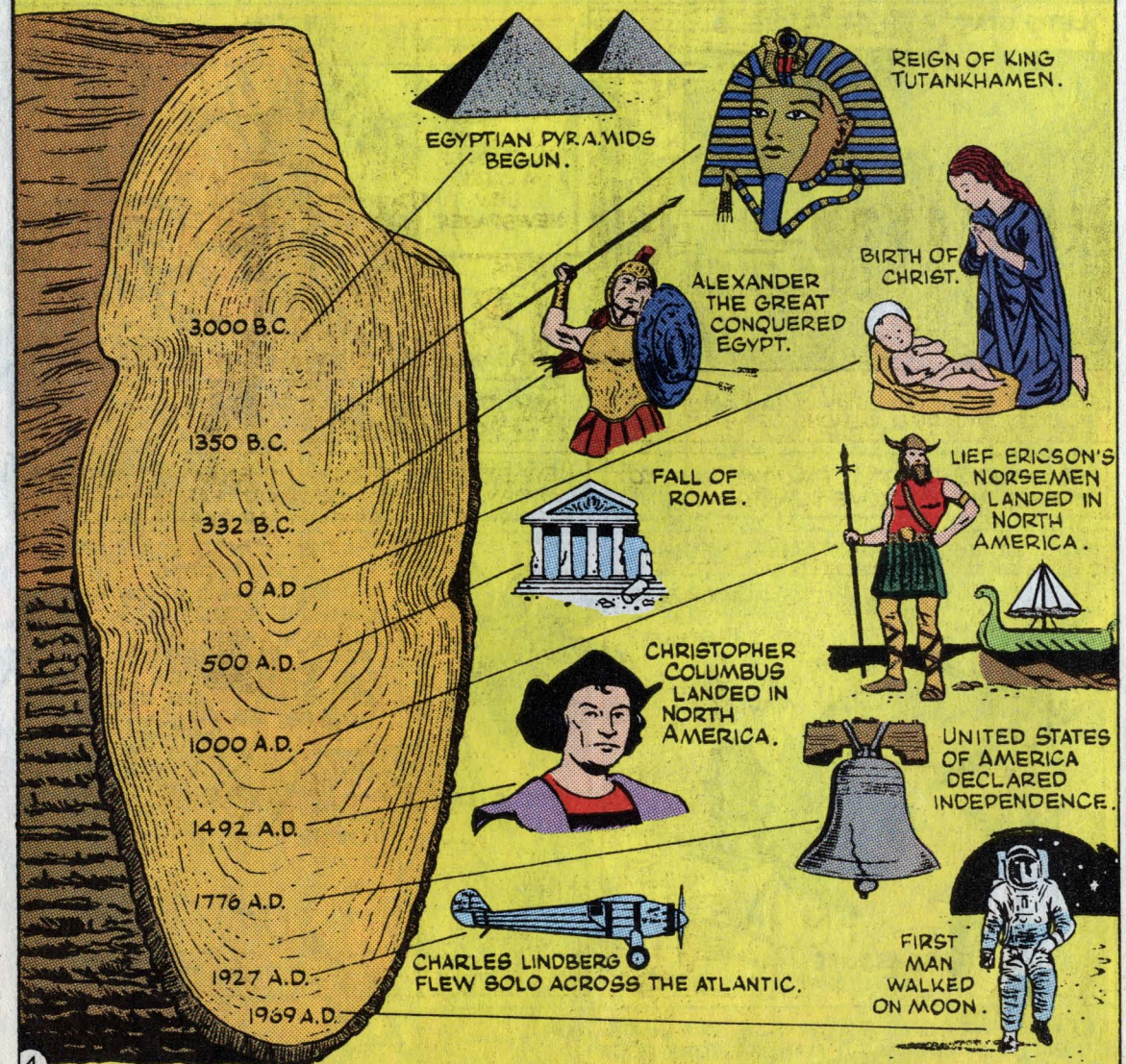
THIS IS "PHOTOSYNTHESIS".

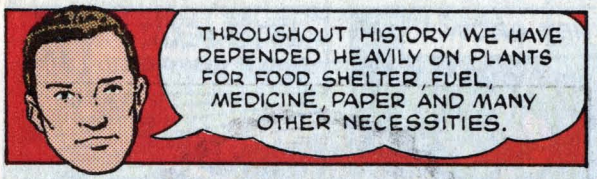


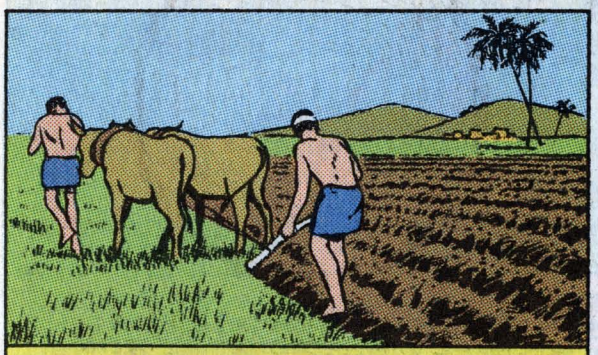
FOOD MADE BY LEAVES GOES THROUGH SPECIAL CHANNELS TO ALL PARTS OF THE PLANT TO MAKE NEW GROWTH.

IN TREES, YEARLY GROWTH SHOWS AS RINGS. A CROSS SECTION OF THE TRUNK TELLS THE TREE'S AGE.

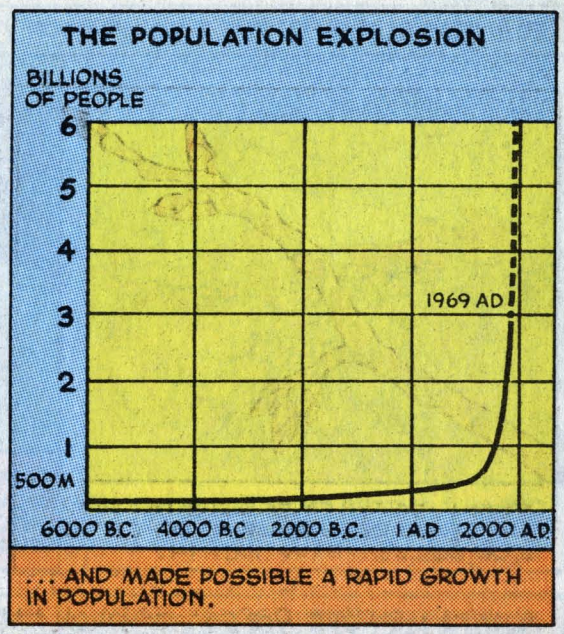
A CROSS SECTION OF A LOG FROM AN ANCIENT BRISTLECONE PINE FOREST, SOME OF THE WORLD'S OLDEST TREES, COULD SERVE AS A 5,000-YEAR CALENDAR OF HISTORY.



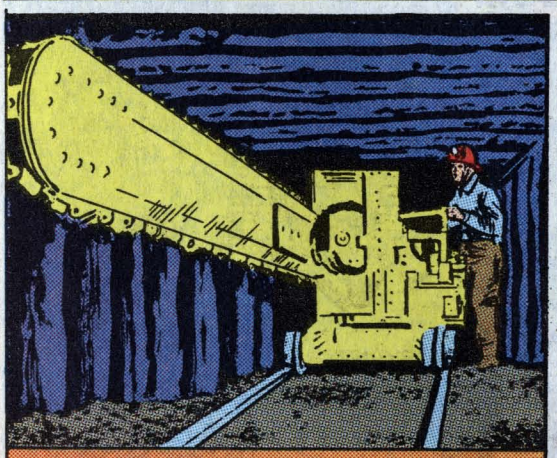

THROUGHOUT HISTORY WE HAVE DEPENDED HEAVILY ON PLANTS FOR FOOD, SHELTER, FUEL, MEDICINE, PAPER AND MANY OTHER NECESSITIES.



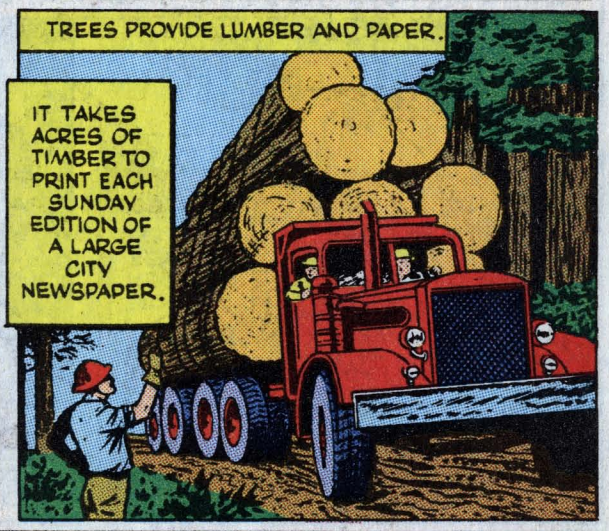
AFTER MAN LEARNED TO PLANT CROPS, ABOUT 10,000 YEARS AGO, THE WORLD'S FOOD SUPPLY BEGAN TO INCREASE...



... AND MADE POSSIBLE A RAPID GROWTH IN POPULATION.



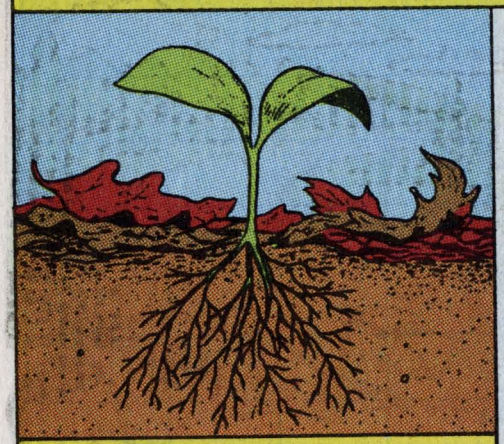
COAL IS A "FOSSIL FUEL" -THE REMAINS OF PLANTS THAT DIED MILLIONS OF YEARS AGO.



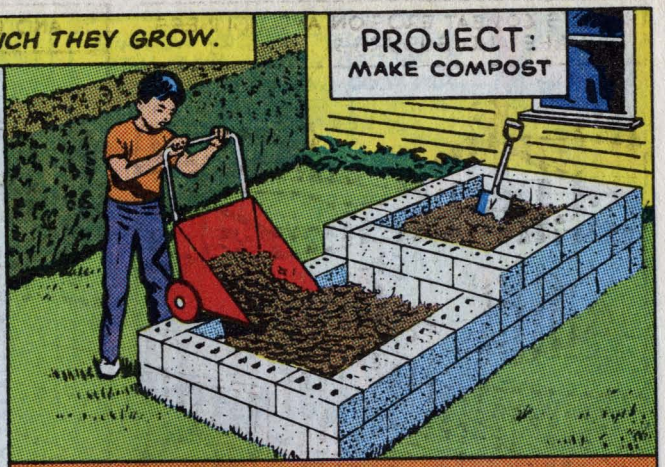
SCIENTISTS ARE STILL FINDING WAYS TO CHANGE AND IMPROVE PLANTS AND MAKE MORE EFFICIENT USE OF OUR NATURAL RESOURCES.

NEW STRAINS OF RICE, FOR EXAMPLE, MATURE 30 DAYS EARLIER SO ASIAN FARMERS CAN GROW MORE CROPS A YEAR THAN BEFORE.

PLANTS HELP MAKE THE SOIL IN WHICH THEY GROW.

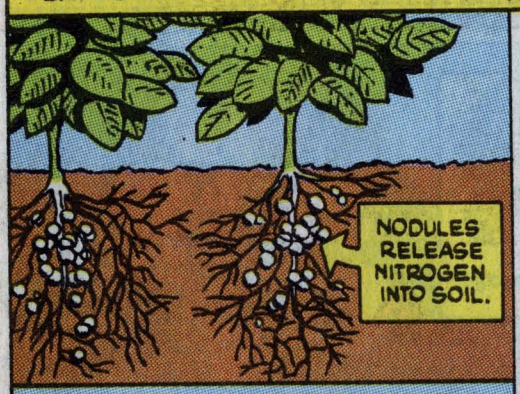


ORGANIC MATTER FROM DECAYING PLANTS IS AN ESSENTIAL PART OF GOOD SOIL.

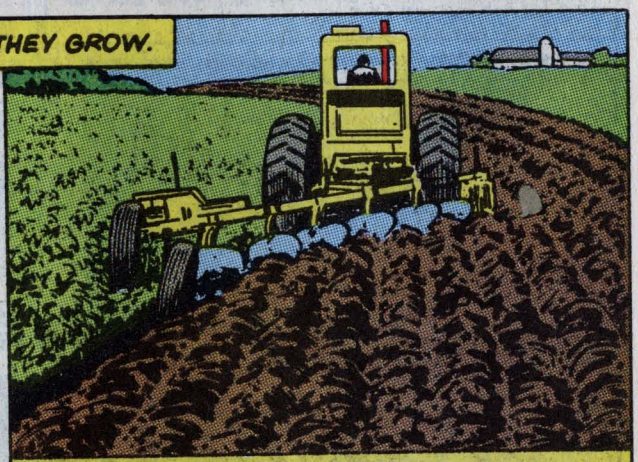


PUT IN ALTERNATE LAYERS OF LEAVES AND SOIL. MOISTEN, ADD FERTILIZER, LET DECAY THEN DIG INTO GARDEN TO ENRICH SOIL. (MAKES A GREAT FISH-WORM BED, TOO).

PLANTS IMPROVE THE SOIL IN WHICH THEY GROW.

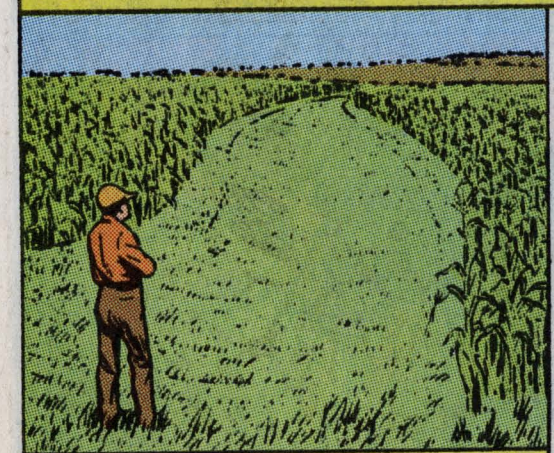


LEGUMES, SUCH AS SOYBEANS, TAKE NITROGEN FROM THE AIR AND RELEASE IT INTO THE SOIL. NITROGEN IS ESSENTIAL TO FORMATION OF PROTEINS - THE BASIS OF PROTOPLASM AND LIFE ITSELF.

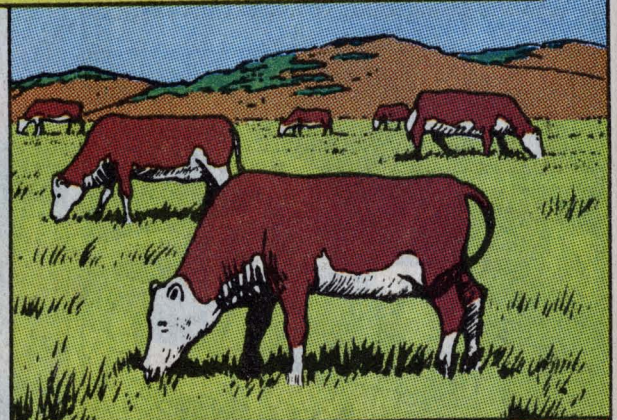


FARMERS OFTEN PLANT A COVER CROP TO PROTECT SOIL DURING WINTER, THEN PLOW IT UNDER IN SPRING TO PROVIDE ORGANIC MATTER AND FERTILITY TO SOIL.

PLANTS PROTECT SOIL FROM EROSION - THEREBY REDUCE WATER POLLUTION.



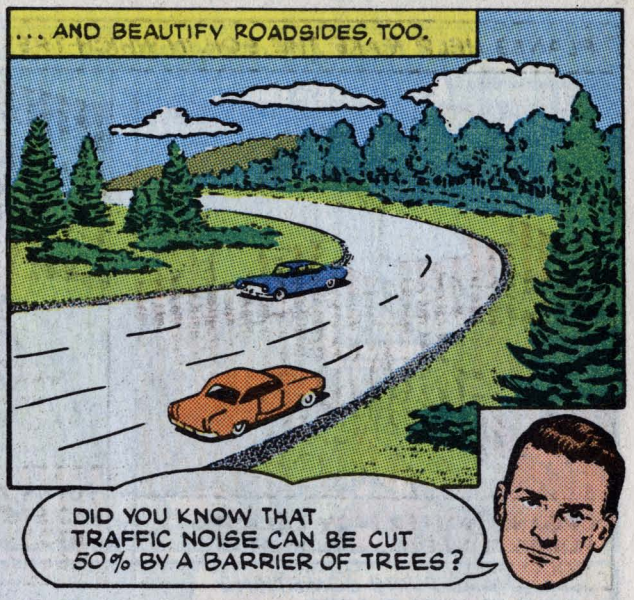
GRASS CAN "PAVE" A WATERWAY TO PREVENT EROSION.



KEEPING AND IMPROVING GOOD NATIVE GRASS COVER IS AN IMPORTANT RANGE CONSERVATION PRACTICE - AND KEEPS LIVESTOCK WELL FED.

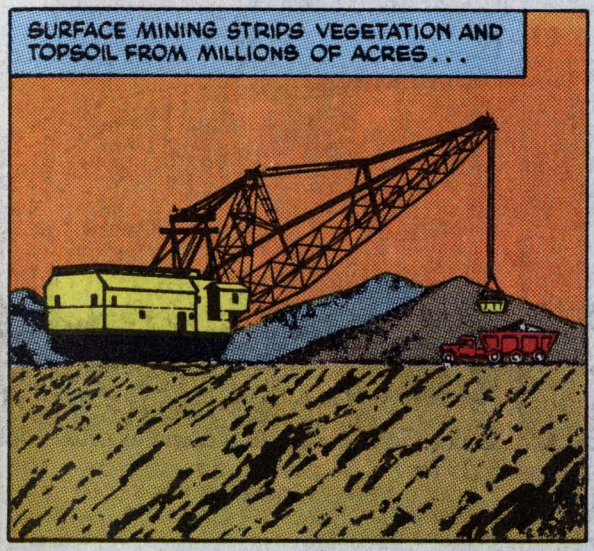
PLANTS COMBAT EROSION AND UGLINESS IN CITIES AND SUBURBS...

...AND BEAUTIFY ROADSIDES, TOO.

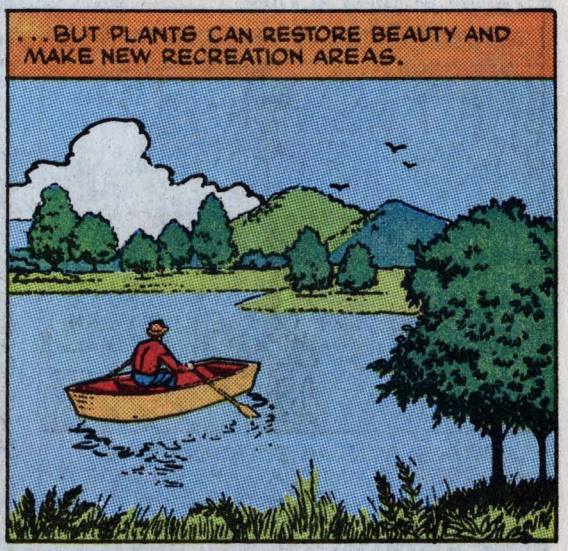


DID YOU KNOW THAT TRAFFIC NOISE CAN BE CUT 50% BY A BARRIER OF TREES?

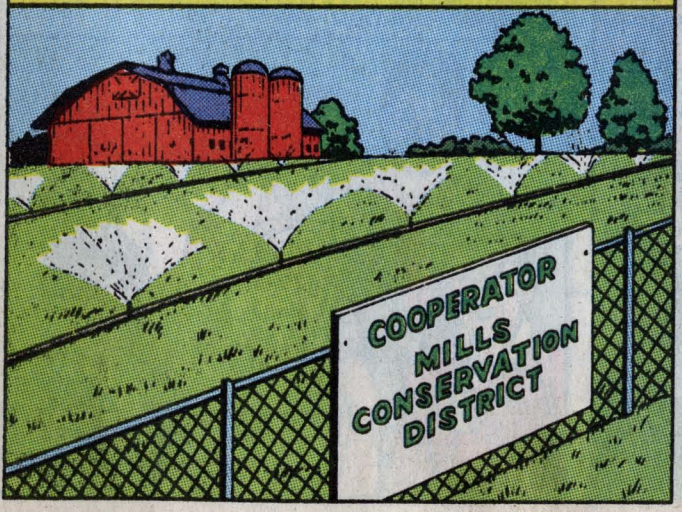
SURFACE MINING STRIPS VEGETATION AND TOPSOIL FROM MILLIONS OF ACRES...



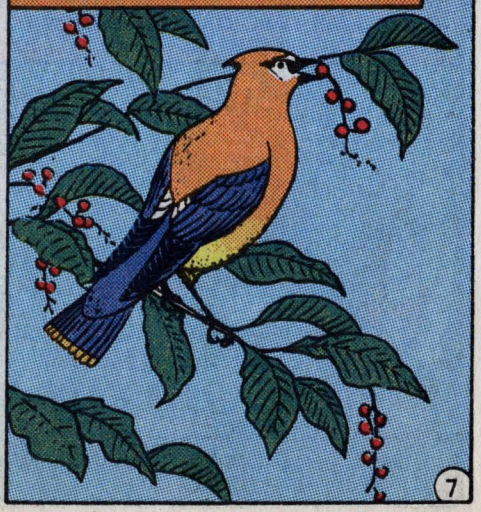
...BUT PLANTS CAN RESTORE BEAUTY AND MAKE NEW RECREATION AREAS.



GROUND COVER CAN ASSIST IN ABSORBING WASTES FROM DAIRIES, SEWAGE PLANTS AND PAPER MILLS WHEN THEY ARE SPRAYED ON PASTURELAND.



IN COUNTRY OR CITY, PLANTS PROVIDE FOOD AND COVER FOR BIRDS AND OTHER WILDLIFE.



YOUNG PEOPLE TODAY ARE CONCERNED ABOUT THE ENVIRONMENT...

WHAT DO YOU THINK IS THE MOST PRESSING PROBLEM BEFORE THE NATION, TODAY?

IN A NATIONWIDE SURVEY OF 57,000 HIGH SCHOOL STUDENTS, 63% OF THE BOYS AND 54% OF THE GIRLS SAID: "AIR AND WATER POLLUTION."

... AND ARE DOING SOMETHING ABOUT IT - WITH PLANTS.

MORE AND MORE SCHOOLS ARE USING OUTDOOR CLASSROOMS FOR ENVIRONMENTAL STUDIES.

SOME STUDENTS MANAGE AND TEND A SCHOOL FOREST.

IN MANY STATES "JUNIOR BOARDS" ARE HELPING PLAN AND CARRY OUT ACTIVITIES OF CONSERVATION DISTRICTS.

CLEAR CREEK SOIL AND WATER CONSERVATION DISTRICT

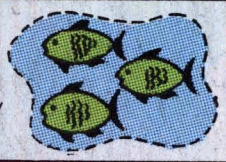
YOUTH GROUPS HAVE ACTIVE CONSERVATION PROGRAMS UNDER WAY.

ENVIRONMENTAL WORDS WE HEAR NOWADAYS

BIODEGRADABLE
CAPABLE OF BEING DECOMPOSED BY PROCESSES OF NATURE.

BIOSPHERE
THE EARTH'S WATERS, LAND SURFACE, AND ATMOSPHERE WHERE ALL ORGANISMS, INCLUDING MAN, LIVE.

CARRYING CAPACITY
THE NUMBER OF PLANTS OR ANIMALS A GIVEN AREA CAN SUPPORT AT ANY ONE TIME.

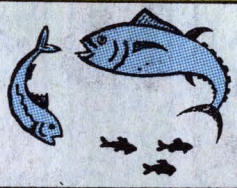


ECOLOGY
THE RELATIONSHIPS BETWEEN ORGANISMS (LIVING THINGS), THEIR SURROUNDINGS AND EACH OTHER.

EFFLUENT
OUTFLOWING WASTE MATERIAL.

ENVIRONMENT
OUR SURROUNDINGS

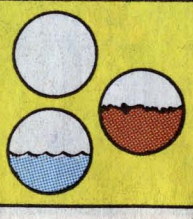
FOOD CHAIN
THE RELATIONSHIP OF ORGANISMS IN WHICH THE SMALLER OR MORE NUMEROUS ARE FOOD FOR THE LARGER ONES.



GREENBELT
AN AREA, USUALLY ADJACENT TO CITIES, SPECIFICALLY PLANNED TO PRESERVE NATURAL BEAUTY, PROVIDE OPEN SPACE AND OUTDOOR RECREATION.

HABITAT
THE HOME OF A CERTAIN RACE, SPECIES OR INDIVIDUAL.

NATURAL RESOURCES
THOSE THINGS WE DEPEND ON IN OUR ENVIRONMENT WHICH ARE SUPPLIED BY NATURE - LIKE AIR, WATER, OR SOIL.



POLLUTION
MAKING UNCLEAN THE WATERS OF LAKES OR STREAMS OR BEFOULING THE AIR WITH GASES, VAPORS, DUST, OR NOISE.

RECYCLING
RE-USING MATERIALS TO SAVE WASTE.

SANITARY LANDFILL
AN AREA WHERE TRASH AND GARBAGE ARE PROPERLY BURIED.

SEDIMENT
SOIL PARTICLES MOVED BY WATER - A PRODUCT OF EROSION.

SMOG
AIR HEAVILY LOADED WITH GASES AND SMOKE.

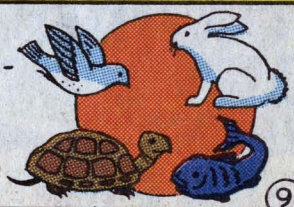
SOIL EROSION
LOSS OF SOIL BY ACTION OF WIND AND WATER.

SOLID WASTES
GARBAGE, TRASH AND OTHER WASTE MATERIALS LIKE GLASS, METAL, RUBBER OR PLASTIC.

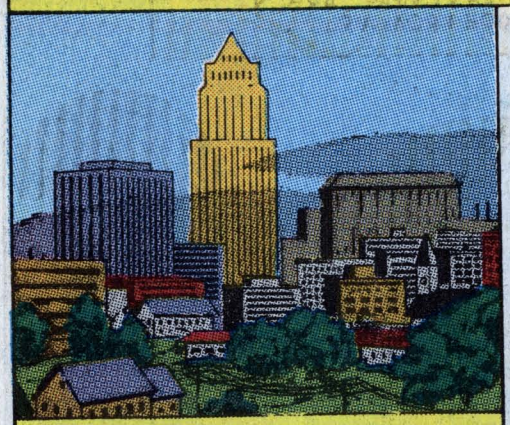
TRANSPIRATION
RELEASE OF MOISTURE FROM PLANTS INTO THE AIR.

WATERSHED
ALL THE LAND THAT DRAINS INTO A SINGLE STREAM.

WILDLIFE
LIVING CREATURES - ANIMALS, FISH, REPTILES, BIRDS THAT ARE NOT DOMESTICATED.



PLANTS AND AIR POLLUTION

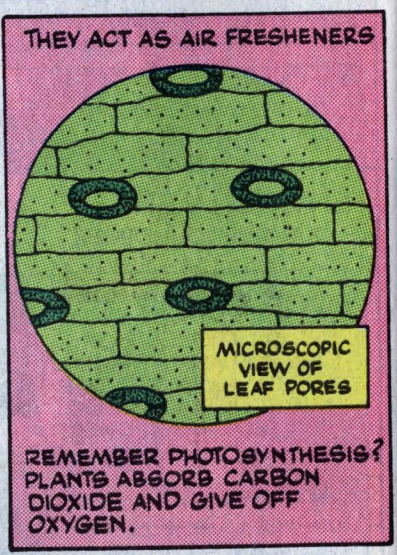


AIR POLLUTION SICKENS PEOPLE, INJURES OR KILLS PLANTS, DIRTIES HOMES, DAMAGES HOMES, DAMAGES BUILDINGS.
U.S. COST-$20 BILLION ANNUALLY.

AIR POLLUTION INJURES MANY KINDS OF PLANTS.

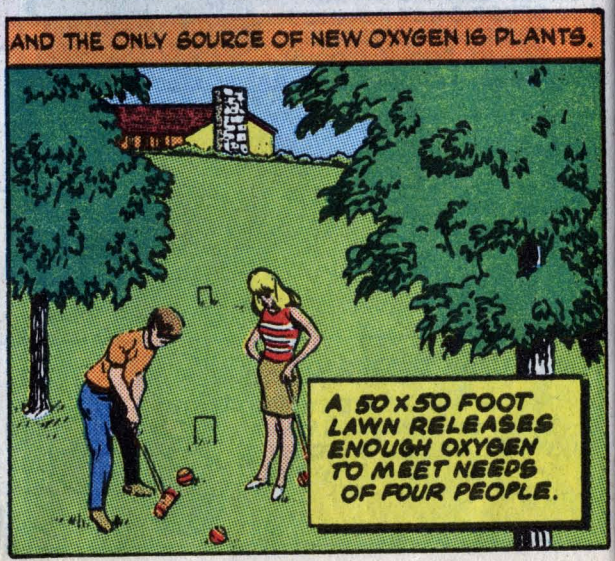
SMOG HAS KILLED OR DAMAGED MILLIONS OF TREES IN UNITED STATES FORESTS.

SOME ACT AS "DETECTIVES" TO WARN OF INVISIBLE AIR POLLUTANTS - BAD GASES LIKE SULPHUR DIOXIDE.

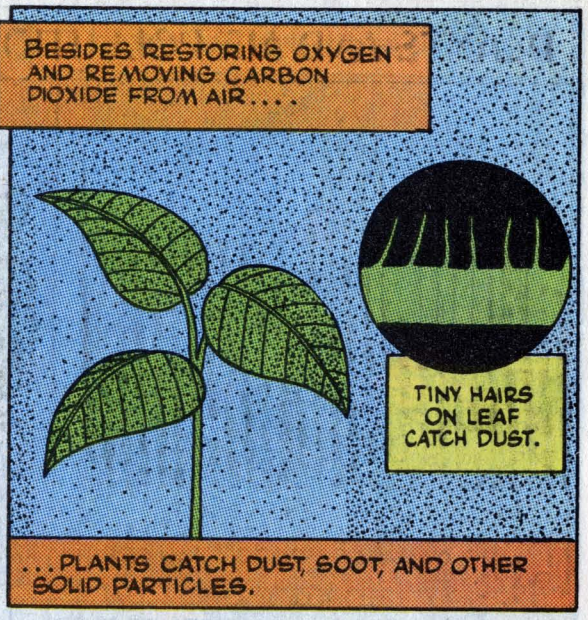


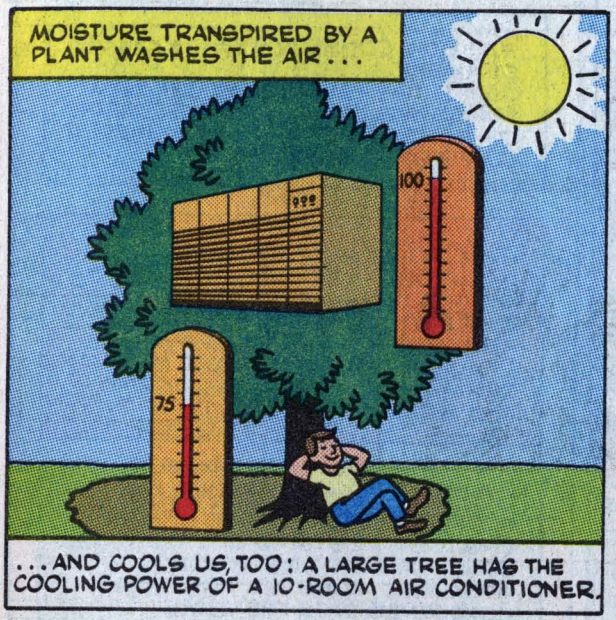
REMEMBER PHOTOSYNTHESIS? PLANTS ABSORB CARBON DIOXIDE AND GIVE OFF OXYGEN.

AS WE BURN GASOLINE OR OTHER FUELS, OXYGEN IS USED UP...

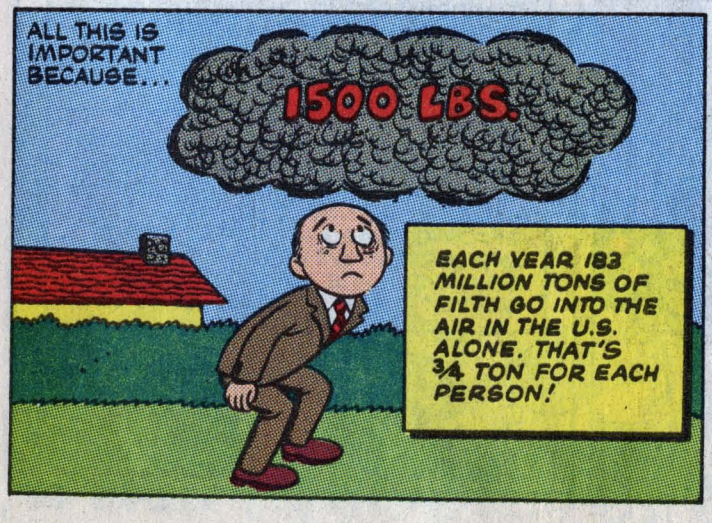


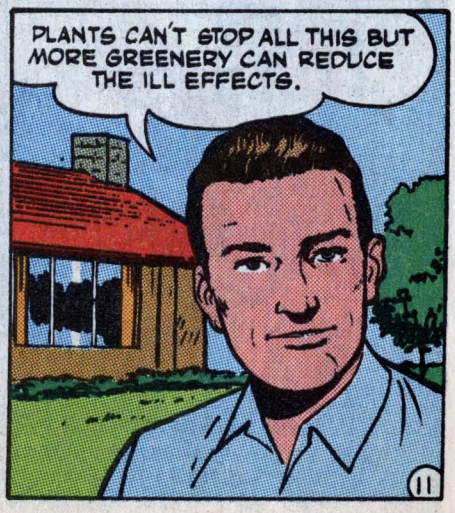
OXYGEN FROM PLANTS "DILUTES" POLLUTED AIR.


BESIDES RESTORING OXYGEN AND REMOVING CARBON DIOXIDE FROM AIR....
TINY HAIRS ON LEAF CATCH DUST.
...PLANTS CATCH DUST, SOOT, AND OTHER SOLID PARTICLES.


MOISTURE TRANSPIRED BY A PLANT WASHES THE AIR...
100
75
...AND COOLS US, TOO: A LARGE TREE HAS THE COOLING POWER OF A 10-ROOM AIR CONDITIONER.

MANY PLANTS - ESPECIALLY THOSE THAT BLOOM - HELP MAKE THE WORLD SMELL BETTER.
PLANTS

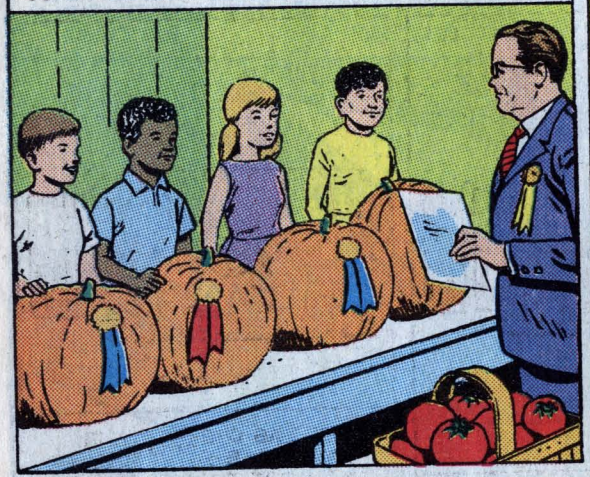

ALL THIS IS IMPORTANT BECAUSE...
1500 LBS.
EACH YEAR 183 MILLION TONS OF FILTH GO INTO THE AIR IN THE U.S. ALONE. THAT'S 3/4 TON FOR EACH PERSON!


PLANTS CAN'T STOP ALL THIS BUT MORE GREENERY CAN REDUCE THE ILL EFFECTS.
11

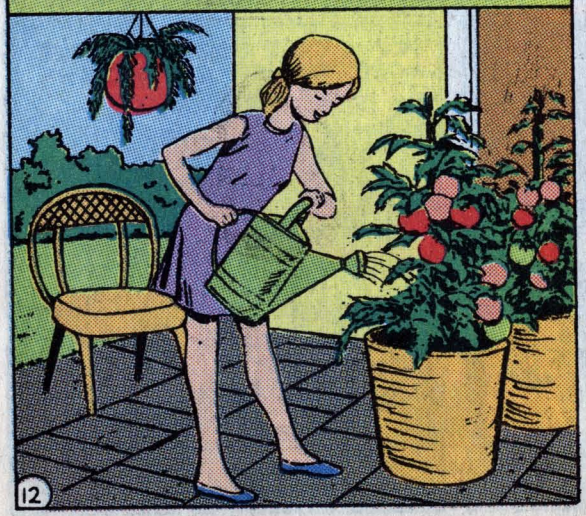
GARDENING IS FUN - FOR ALL AGES.

WHEN A COLORADO MEN'S GARDEN CLUB SET UP A "CHILDREN'S COMMUNITY GARDEN" 88 BOYS AND GIRLS APPLIED FOR AND WORKED PLOTS.

BESIDES TAKING HOME BASKETS OF FOOD SOME TOOK HOME PRIZES.



MANY SERIOUS HOBBYISTS AND PROFESSIONAL GARDENERS GET STARTED WITH SIMPLE INDOOR PLANTINGS.



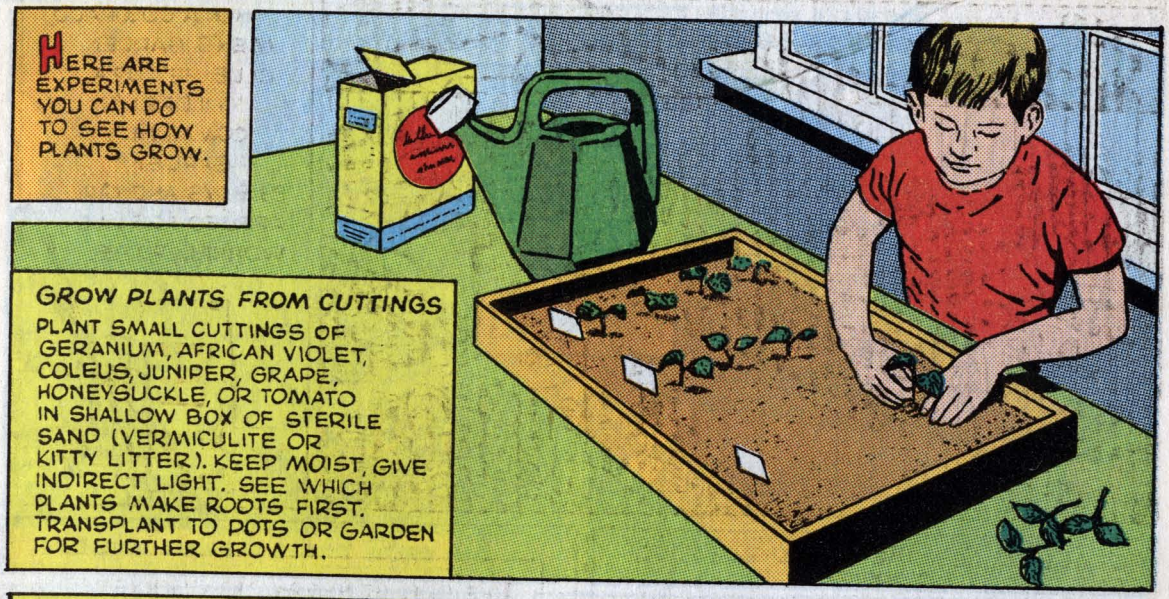
THE SOIL CONSERVATION SOCIETY OF AMERICA (SCSA) WHICH PUBLISHES THIS "BETTER ENVIRONMENT" SERIES WELCOMES AS CO-SPONSOR OF THIS BOOKLET THE MEN'S GARDEN CLUBS OF AMERICA (MGCA).

MGCA HAS 10,000 MEMBERS IN 250 CLUBS - MEN WHO LOVE GARDENING FOR THE ENJOYMENT AND BENEFITS THEY GET AND BECAUSE THEY SEE GARDENING AS A MEANS OF MAKING EACH HOME AND EACH COMMUNITY HEALTHIER, HAPPIER AND MORE BEAUTIFUL.

SCSA IS AN ORGANIZATION OF PROFESSIONAL MEN AND WOMEN ENGAGED, MOSTLY, IN SOIL AND WATER CONSERVATION. LIKE MGCA MEMBERS, HOWEVER, THEY ARE CONCERNED WITH THE TOTAL ENVIRONMENT, KNOWING THAT ALL ELEMENTS OF OUR "HABITAT" ARE INTERDEPENDENT.

BOTH MGCA AND SCSA SPONSOR A VARIETY OF ACTIVITIES, INCLUDING YOUTH PROGRAMS, AND TAKE PART IN NATIONAL AND INTERNATIONAL EFFORTS AIMED AT PROTECTING AND IMPROVING THE ENVIRONMENT SO AS TO MAKE OUR COUNTRIES BETTER PLACES IN WHICH TO LIVE.

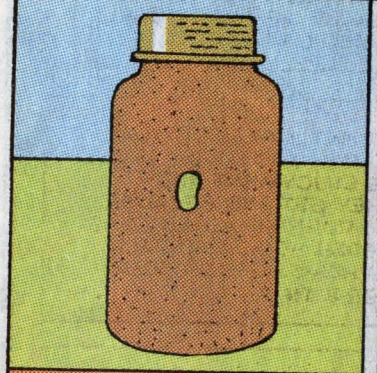
HERE ARE EXPERIMENTS YOU CAN DO TO SEE HOW PLANTS GROW.



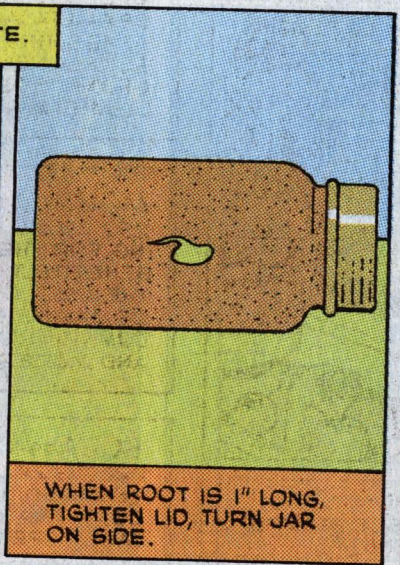
GROW PLANTS FROM CUTTINGS

PLANT SMALL CUTTINGS OF GERANIUM, AFRICAN VIOLET, COLEUS, JUNIPER, GRAPE, HONEYSUCKLE, OR TOMATO IN SHALLOW BOX OF STERILE SAND (VERMICULITE OR KITTY LITTER). KEEP MOIST, GIVE INDIRECT LIGHT. SEE WHICH PLANTS MAKE ROOTS FIRST. TRANSPLANT TO POTS OR GARDEN FOR FURTHER GROWTH.

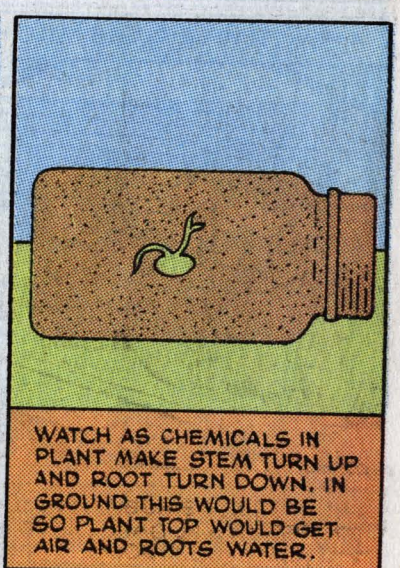
WATCH SEEDS GERMINATE.



PLANT A BEAN AGAINST GLASS IN A JAR OF MOIST SOIL. PUT IN WARM PLACE - NOT DIRECT SUN.



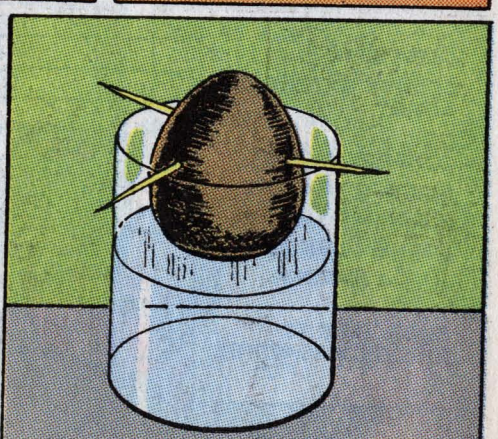
WHEN ROOT IS 1" LONG, TIGHTEN LID, TURN JAR ON SIDE.



WATCH AS CHEMICALS IN PLANT MAKE STEM TURN UP AND ROOT TURN DOWN. IN GROUND THIS WOULD BE SO PLANT TOP WOULD GET AIR AND ROOTS WATER.

GROW AN AVOCADO TREE.

SELECT VERY RIPE AVOCADO. REMOVE SEED CAREFULLY. STICK 3 TOOTHPICKS INTO PIT SO IT WILL STAND, JUST TOUCHING WATER IN A GLASS, FLAT END DOWN.



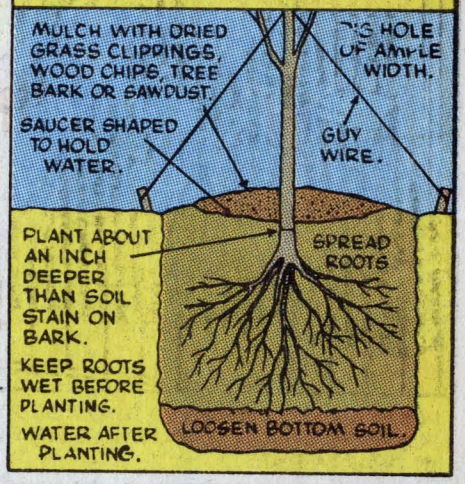
KEEP IN LIGHT. WATCH ROOTS DEVELOP FIRST. AFTER TOP GROWTH STARTS (ONE MONTH OR MORE) CUT OFF TIP TO MAKE IT BRANCH. TRANSFER TO POT IN GOOD SOIL.

SELECT SIZE AND SHAPE OF TREES AND SHRUBS TO FIT YOUR SPACE AND COMPLEMENT YOUR HOUSE AND GARDEN.

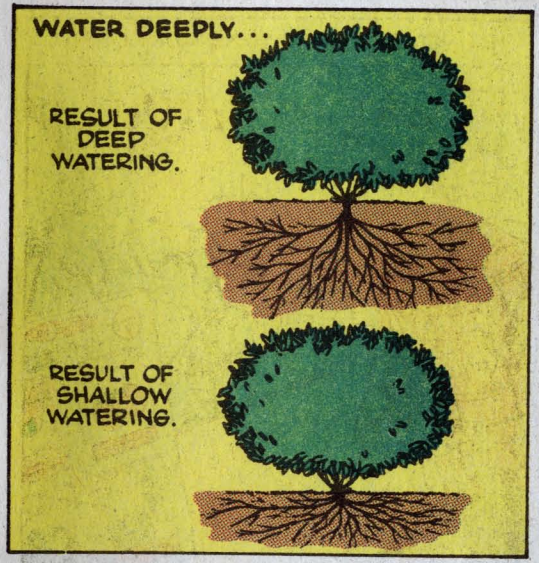
COLUMNAR | OVAL AND GLOBE | WEEPING SHAPED

FOLLOW PLANTING INSTRUCTIONS CAREFULLY...

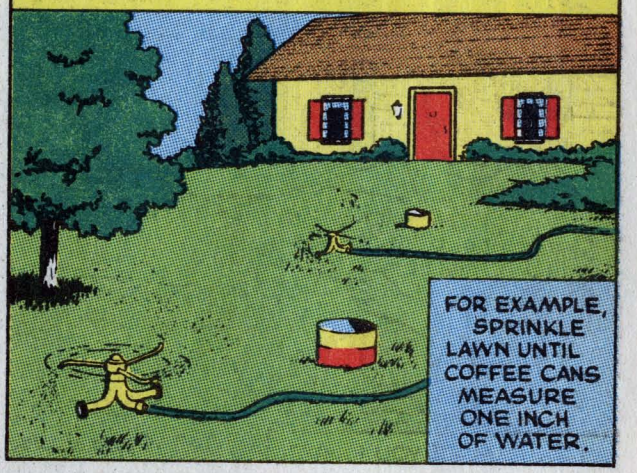
HOW TO PLANT A TREE

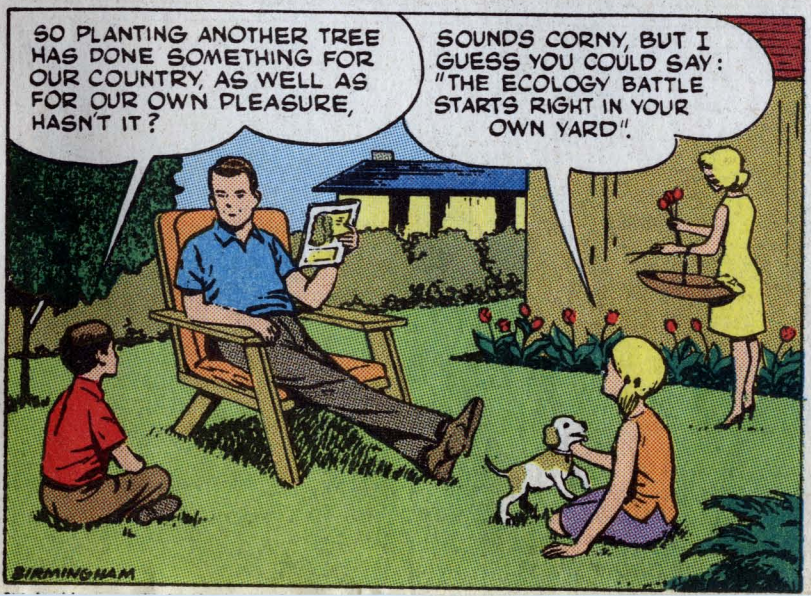
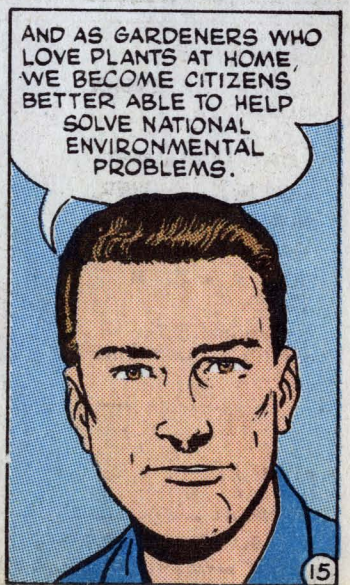

MULCH WITH DRIED GRASS CLIPPINGS, WOOD CHIPS, TREE BARK OR SAWDUST.
SAUCER SHAPED TO HOLD WATER.
HOLE OF AMPLE WIDTH.
GUY WIRE.
PLANT ABOUT AN INCH DEEPER THAN SOIL STAIN ON BARK.
KEEP ROOTS WET BEFORE PLANTING.
WATER AFTER PLANTING.
SPREAD ROOTS
LOOSEN BOTTOM SOIL.

WATER DEEPLY...



FOR BEST ROOT GROWTH OF TREES, SHRUBS AND LAWN - BUT KNOW HOW MUCH IS NEEDED AND APPLIED. DON'T GUESS.




SO PLANTING ANOTHER TREE HAS DONE SOMETHING FOR OUR COUNTRY, AS WELL AS FOR OUR OWN PLEASURE, HASN'T IT?
SOUNDS CORNY, BUT I GUESS YOU COULD SAY: "THE ECOLOGY BATTLE STARTS RIGHT IN YOUR OWN YARD".
BIRMINGHAM